



P.B.5818 - Patentlaan 2
2280 HV Rijswijk (ZH)
☎ +31 70 340 2040
TX 31651 epo nl
FAX +31 70 340 3016

**Eur päisches
Patentamt**

Zweigstelle
in Den Haag
Recherchen-
abteilung

**Eur pean
Patent Office**

Branch at
The Hague
Search
division

**Office européen
des brevets**

Département à
La Haye
Division de la
recherche

Boyce, Conor
F.R. Kelly & Co,
27 Clyde Road
Ballsbridge,
Dublin 4
IRLANDE

D.6/7.

Datum/Date

28.03.03

Zeichen/Ref./Réf.

pf05815/pc/cb

Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°.

02394113.1-2411-

Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire

TDK Corporation

COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

☒ abstract

☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

1

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|--|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.7) |
| X | EP 1 237 222 A (ERICSSON TELEFON AB L M) 4 September 2002 (2002-09-04) * page 5, line 40 - page 8, line 25; figure 3A * | 1-15 | H04B1/48 H04B1/40 |
| X | US 6 021 318 A (SCHAFER JOSEF-PAUL) 1 February 2000 (2000-02-01) * column 3, line 51 - column 5, line 62; figure 2 * | 1-15 | |
| X | DE 100 52 711 A (SIEMENS AG) 2 May 2002 (2002-05-02) * page 3, line 23 - page 4, line 43; figure 1 * | 1-3,8-11 | |
| X | DE 198 42 706 A (SIEMENS AG) 23 March 2000 (2000-03-23) * the whole document * | 1-3,8-15 | |
| A | US 5 507 011 A (CHIGODO YOSHIKAZU ET AL) 9 April 1996 (1996-04-09) * column 5, line 63 - column 6, line 15; figure 1 * | 1-15 | TECHNICAL FIELDS SEARCHED (Int.Cl.7) H04B |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 21 March 2003 | Examiner Lindhardt, U |
| CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document | | | |

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 39 4113

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-03-2003

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|--|--|
| EP 1237222 A | 04-09-2002 | EP 1237222 A1 WO 02069435 A1 | 04-09-2002 06-09-2002 |
| US 6021318 A | 01-02-2000 | DE 19704151 C1 CN 1195239 A ,B EP 0862279 A2 JP 10313266 A | 27-08-1998 07-10-1998 02-09-1998 24-11-1998 |
| DE 10052711 A | 02-05-2002 | DE 10052711 A1 WO 0235723 A1 | 02-05-2002 02-05-2002 |
| DE 19842706 A | 23-03-2000 | DE 19842706 A1 CN 1318227 T WO 0018026 A1 EP 1114523 A1 | 23-03-2000 17-10-2001 30-03-2000 11-07-2001 |
| US 5507011 A | 09-04-1996 | JP 2822824 B2 JP 6197038 A JP 2874497 B2 JP 6197041 A DE 4343719 A1 GB 2273820 A ,B | 11-11-1998 15-07-1994 24-03-1999 15-07-1994 23-06-1994 29-06-1994 |

Title: "SP3T PIN Switch Controlled Multi-band ASM/FEM"

With reference to your request we have performed:

A novelty search to determine if the configurations of Figure 1, Figure 9 or Figure 13, according to present report, are known.

Published available documentation from the following countries has been searched: SE, DK, NO, FI, GB, DE, CH, FR, EP, WO, AT, AU, CA, JP, RU and US (see enclosure).

The search has been performed in relevant parts of the following technical fields according to the International Patent Classification (IPC):

H01P, H03F, H03H, H04B, H04Q

and in the US documentation in relevant parts of the following US-classes:
Where appropriate, searches in databases are also performed.

The following material is considered relevant.

Patent documents:

| <i>Ref</i> | <i>Country, no</i> | <i>Comments and indication of relevant passage etc. Cat</i> |
|------------|--------------------|--|
| 1 | WO 01/99444 | Radio frequency base station data repeater for use in wireless data services to enhance signal to noise ratio using electronic signature to eliminate location measurement errors 2 |
| 2 | WO 00/11800 | Multi-band multi-function integrated tracking and data relay satellite system (TDRSS)/GPS transceiver has signal processor connected to single digital processor responsible for any final signal and/or data processing or formatting 2 |

Please note!

The Patent Office does not, in search reports, give any opinion on patentability, validity or infringement.

- *) 1 = Document of particular relevance.
2 = Documents defining the general state of the art.
3 = Document cited for other reasons ¹

| | | | |
|----|-------------------------------------|--|---|
| 3 | EP 1223634 | High frequency switch for portable telephone, has diplexer that switches signal transfer between several receiving terminals using phase shifter and SAW terminals | 2 |
| 4 | EP 1079531 | Integrated circuit dual-band front end, for receiving DAB signals in L-band and VHF band III, up converts VHF signals to L-band for down conversion using same signal processing chain for both bands | 2 |
| 5 | JP 2001345733 | Transmitter and receiver control circuit has first low pass filter with lower impedance from antenna terminal side than first transmitting terminal side | 2 |
| 6 | JP 2002016401 | High-frequency switch circuit for mobile telephone, has LC parallel resonance circuit connected to cathode of diode, to obtain signal at resonance frequency | 2 |
| 7 | JP 2001186047 | High frequency circuit for radio communication apparatus such as portable telephone, has diplexer sections with filter in one section whose cut-off frequency band is set within specific range | 2 |
| 8 | JP 2001285122 2 US 2001, 0027119 | Mobile communication device e.g. dual band mobile telephone for motor vehicle, has four port high frequency switch to separate cellular and mobile communication systems into transmission and receiver sections | 3 |
| 9 | US 5486836 | Dual rectangular patch antenna system for providing isolation and diversity - switches between two similar rectangular patch antennae according to external signal e.g. for time-duplex operation to select one particular antenna during transmit operation | 3 |
| 10 | WO 02/065780 | Broadcast TV and satellite switching system to switch multiple broadcast signals for transmission through single coaxial cable to TV receiver | 3 |

Coordinating engineer: Stefan Hultquist

Please note!

The Patent Office does not, in search reports, give any opinion on patentability, validity or infringement.

- *) 1 = Document of particular relevance.
 2 = Documents defining the general state of the art.
 3 = Document cited for other reasons ¹